REMARKS

Prior to examination, by this Second Preliminary Amendment, Applicants amend the specification and the claims by canceling claims 1-13 and adding new claims 14-27, so as to put the application in better form for examination. No new matter is being introduced by this amendment and it is respectfully requested that the above amendment be considered when the application is examined on its merits.

Respectfully submitted,

Dated: January 17, 2002

By: _____
J. Michael Thesz
Reg. No. 40,354

HOGAN & HARTSON LLP
555 13th Street, N.W.
Washington, D.C. 20004
(202) 637-5600
Customer No. 24,633

Version with Markings to Show Changes Made

IN THE SPECIFICATION:

Page 1, paragraph of line 9 has been amended as follows:

[Description] BACKGROUND OF THE INVENTION

Field of the Invention

paragraph of lines 11-14 has been amended as follows:

The invention relates to a transporting apparatus used in a press line or multi-stage press for transporting large components[, having a transporting apparatus for transporting workpieces, according to the preamble of claim 1].

paragraph of line 16 has been amended as follows:

[Prior Art] Discussion of the Related Art

Paragraph of Page 1, lines 18 to Page 2, line 2 has been amended as follows:

In the press, press line or multi-stage press for large components, transfer apparatuses are provided for transporting workpieces into the processing stages. Earlier transporting systems provided cam-drive-controlled longitudinal and lifting movements, and possibly transverse movements of the transporting apparatuses, which were derived from the main drive of a press and were thus forcibly synchronized with the ram movement (EP 0 210 745, Figure 4). In recent systems according to EP 0 672 480 B1 or EP 0 693 334 A1, the transporting operation between individual processing stations takes place individually by

individual transporting apparatuses, which allow, in particular, a universal capacity for movement of the workpiece transportation between individual processing stages. By means of such a drive, which is fully independent of the central drive of the press, or transportion of the workpiece with any desired degrees of freedom, it is possible to optimize the transporting operation of the workpiece in particular in relatively large press installations, such as in [. For this purpose, you are referred to] EP 0 672 480 or EP 0 693 334.

Page 3, paragraph of line 5 has been amended as follows:

[Object and Advantage of the Invention] SUMMARY OF THE INVENTION

paragraph of lines 14-18 has been amended as follows:

[This object is achieved, taking a transporting system according to the preamble of Claim 1 as departure point, by the characterizing features of Claim 1. Advantageous and expedient development of the transporting system are specified in the subclaims.].

Page 5, paragraph of lines 15-17 has been amended as follows:

Further advantages of the drive system are described in the inventor's DE100 11 796, [to which, in order to avoid repetition, you are expressly referred] disclosed herein with reference to the present invention.

paragraph of line 23 has been amended as follows:

[In the figures:] BRIEF DESCRIPTION OF THE DRAWINGS

paragraph of lines 29-30 has been amended as follows:

Figure 2A[a] shows a front view of a drive of the transfer system [as a basic diagram with a table of movements, and

Figure 2B shows possible movements of the transfer system with identical ortaional speeds for gear wheels A1 and A2 and with one drive at standstill,

Page 6, paragraph of line 5 has been amended as follows:

[Description of an Exemplary Embodiment] DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

Paragraph from Page 6, line 35 to Page 7, line 10 has been amended as follows:

The schematic illustration in Figure 2A shows the drive concept of a transporting system. Drives A1, A2 set gearwheels 8, 9 in rotation or keep them in the rest position. These gearwheels 8, 9 act on racks 10, 11 and thus affect the horizontal position thereof. At the same time, the racks 10, 11 are in operative connection with the gearwheel 12. Rack 13 is driven by gearwheel 12 and executes a vertical movement. The actual mount and retaining means for the workpiece transportion are fastened at the point of articulation 14 of the rack 13, as will be described in more detail in the following figures. In the arrangement proposed, it is thus possible, by regulating the drives A1, A2, for the point of articulation 14 to reach any desired point in an X-Y co-ordinate system with its traveling curve.

Page 7, paragraph of lines 12-17 has been amended as follows:

Figure 2B [Table 15] shows a table 15 of the possible movements with identical

rotational speeds for A1 and A2 and with one drive at a standstill in each case. The illustration does not contain the large number of variants which may also additionally be achieved by different rotational speeds for A1 and A2.

paragraph of lines 27-35 has been amended as follows:

By way of example, the table 15 shows, with identical rotational speed and direction of rotation of the drives A1/A2, a purely vertical (Y-) movement of the point of articulation 14 and thus a lifting or lowering movement of the transporting system. A combination of movements takes place by way of different rotational speeds [[sic]] of A1/A2, to the extreme case where one drive does not execute any rotational movement, as can be seen from the last 4 schematic illustrations.

Paragraph of Page 7, line 36 to Page 8, line 2 has been amended as follows:

Gearwheels and racks are illustrated by way of example in Figure 2A as movement-transmission means, but the task is also fulfilled by other drive components, such as separately driven toothed belts with toothed-belt pulleys.

Page 8, paragraph of lines 27 to 36 has been amended as follows:

If a change in position is necessary for removing a workpiece or setting it down, crossbar or crossmember 25 may be of pivotable design. Crossmember 25 can be pivoted about the pivot axis 27 and by the angle 28 by means of a drive 26. Without [the [sic]] an intermediate set-down location or orientating station is necessary, the transfer system proposed travels the entire route from, for example, forming stage 6.1 to forming stage 6.2 and the

workpiece can be positioned correctly in the process.

Page 9, paragraph of lines 19-22 has been amended as follows:

To [aid understanding of] understand the movement sequence, [you are referred] please refer again to Figure 2. Also illustrated in Figure 4 are the vertical linear guide 29 and the coupling system 30 for the crossmember 25.

Page 10, paragraph of lines 24 to 30 has been amended as follows:

It can be seen, in particular, in Figure 5 that [the [sic]] despite the large number of degrees of freedom, a very good design solution for the exemplary embodiment has been found. Of particular note here is the compact and rigid design, which has additionally been achieved with low moving masses, as a result of which the power consumption of the drives is also reduced.

Page 12, paragraph of lines 1-7 has been amended as follows:

The invention is not restricted to the exemplary embodiment which has been described and illustrated. [It also covers all expert configurations within the scope of the applicable Claim 1.] Thus, as an alternative to the gearwheel/rack drives, it is also possible to use spindle drives possibly with a step-down gear mechanism or toothed belts with toothed-belt pulleys.